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PHILOSOPHICAL
TRANSACTIONS
OF THE
ROYAL SOCIETY
OF
LONDON.

FOR THE YEAR MDCCCLXIV.

VOL. 154.

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MDCCCLXV.

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ADVERTISEMENT.

THE Committee appointed by the *Royal Society* to direct the publication of the *Philosophical Transactions*, take this opportunity to acquaint the Public, that it fully appears, as well from the Council-books and Journals of the Society, as from repeated declarations which have been made in several former *Transactions*, that the printing of them was always, from time to time, the single act of the respective Secretaries till the Forty-seventh Volume; the Society, as a Body, never interesting themselves any further in their publication, than by occasionally recommending the revival of them to some of their Secretaries, when, from the particular circumstances of their affairs, the *Transactions* had happened for any length of time to be intermitted. And this seems principally to have been done with a view to satisfy the Public, that their usual meetings were then continued, for the improvement of knowledge, and benefit of mankind, the great ends of their first institution by the Royal Charters, and which they have ever since steadily pursued.

But the Society being of late years greatly enlarged, and their communications more numerous, it was thought advisable that a Committee of their members should be appointed, to reconsider the papers read before them, and select out of them such as they should judge most proper for publication in the future *Transactions*; which was accordingly done upon the 26th of March 1752. And the grounds of their choice are, and will continue to be, the importance and singularity of the subjects, or the advantageous manner of treating them; without pretending to answer for the certainty of the facts, or propriety of the reasonings, contained in the several papers so published, which must still rest on the credit or judgement of their respective authors.

It is likewise necessary on this occasion to remark, that it is an established rule of the Society, to which they will always adhere, never to give their opinion, as a Body, upon any subject, either of Nature or Art, that comes before them. And therefore the

thanks, which are frequently proposed from the Chair, to be given to the authors of such papers as are read at their accustomed meetings, or to the persons through whose hands they received them, are to be considered in no other light than as a matter of civility, in return for the respect shown to the Society by those communications. The like also is to be said with regard to the several projects, inventions, and curiosities of various kinds, which are often exhibited to the Society; the authors whereof, or those who exhibit them, frequently take the liberty to report and even to certify in the public newspapers, that they have met with the highest applause and approbation. And therefore it is hoped that no regard will hereafter be paid to such reports and public notices; which in some instances have been too lightly credited, to the dishonour of the Society.

The Meteorological Journal hitherto kept by the Assistant Secretary at the Apartments of the Royal Society, by order of the President and Council, and published in the Philosophical Transactions, has been discontinued. The Government, on the recommendation of the President and Council, has established at the Royal Observatory at Greenwich, under the superintendence of the Astronomer Royal, a Magnetical and Meteorological Observatory, where observations are made on an extended scale, which are regularly published. These, which correspond with the grand scheme of observations now carrying out in different parts of the globe, supersede the necessity of a continuance of the observations made at the Apartments of the Royal Society, which could not be rendered so perfect as was desirable, on account of the imperfections of the locality and the multiplied duties of the observer.

A List of Public Institutions and Individuals, entitled to receive a Copy of the Philosophical Transactions of each year, on making application for the same directly or through their respective agents, within five years of the date of publication.

Observatories.

Armagh.	Kew.
Cape of Good Hope.	Liverpool.
Dublin.	Madras.
Edinburgh.	Oxford (Radeliffe).
Greenwich.	

Institutions.

Barbadoes . . .	Library and Museum.
Calcutta	Asiatic Society.
	Geological Museum.
Cambridge . . .	Philosophical Society.
Cape Town . . .	South African Library.
Dublin	Royal Dublin Society.
	Royal Irish Academy.
Edinburgh . . .	Royal Society.
London	Admiralty Library.
	Chemical Society.
	College of Surgeons.
	Entomological Society.
	Geological Society.
	Geological Survey of Great Britain.
	Horticultural Society.
	Institute of British Architects.
	Institution of Civil Engineers.
	Linnean Society.
	London Institution.
	Royal Asiatic Society.
	Royal Astronomical Society.
	Royal College of Physicians.
	Royal Geographical Society.
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Sydney	University Library.
Woolwich	Royal Artillery Library.

Belgium.

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	Royal Academy of Sciences.

Denmark.

Altona	Royal Observatory.
Copenhagen . . .	Royal Society of Sciences.

France.

Montpellier . . .	Academy of Sciences.
	Faculté de Médecine.
Paris	Academy of Sciences.
	Dépôt de la Marine.
	Ecole des Mines.
	Geographical Society.
	Geological Society.
	Jardin des Plantes.
	Société d'Encouragement pour l'Industrie Nationale.
Toulouse	Academy of Sciences.

Germany.

Berlin	Royal Academy of Sciences.
	Society of Experimental Philosophy.
Brünn	Naturforschender Verein.
Dresden	Cæsarean Acad. of Naturalists.
Frankfort	Natural History Society.
Giessen	University.
Göttingen	University.
Hamburg	Naturwissenschaftlicher-Verein.
Königsberg	Königlichen Physikalisch Ökonomischen Gesellschaft.
Leipzig	Royal Saxon Society of Sciences.
Mannheim	Observatory.
Munich	Royal Academy of Sciences.
Prague	Bohemian Society of Sciences.
Vienna	Imperial Academy of Sciences.
	Geologische Reichsanstalt.
Würzburg	Physico-Medical Society.

Hungary.

Pesth	Hungarian Academy of Sciences.
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Italy.

Bologna	Academy of Sciences.
Catanea	Accademia Gioenia di Scienze Naturali.
Milan	Institute of Sciences, Letters and Arts.
Modena	Italian Society of Sciences.
Naples	Institute of Sciences.
Palermo	Academy of Sciences and Letters.
Rome	Academy de' Nuovi Lincei.
	Collegio Romano.
Turin	Royal Academy of Sciences.
Venice	Institute of Sciences, Letters, and Arts.

Java.

Batavia	Batavian Society of Sciences.
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Netherlands.

Amsterdam	Royal Institute.
Haarlem	Dutch Society of Sciences.
Rotterdam	Batavian Society of Experimental Philosophy.

Portugal.

Lisbon	Royal Academy of Sciences.
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Russia.

Kazan	Imperial University.
Moscow	Imperial Society of Naturalists.
	Public Museum.
Pulkowa	Observatory.
St. Petersburg . .	Imperial Academy of Sciences.

Spain.

Cadiz	Observatory.
Madrid	Royal Academy of Sciences.

Sweden and Norway.

Christiania	Royal University.
Drontheim	Royal Society of Sciences.
Gottenburg	Kongl. Vetenskaps och Vitterhets Samhälle.
Stockholm	Royal Academy of Sciences.

Switzerland.

Bern	Allg. Schweizerischen Gesellschaft.
Geneva	Société de Phys. et d'Hist. Naturelle.

Transylvania.

Klausenburg	Society of the Transylvanian Museum.
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United States.

Albany	New York State Library.
Boston	American Academy of Sciences.
Newhaven (Conn.)	The Editors of the American Journal.
Cambridge	Harvard University.
Philadelphia	Academy of Natural Sciences.
	American Philosophical Society.
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The fifty Foreign Members of the Royal Society.

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<i>Observatories.</i>	<i>Institutions.</i>
Altona.	Aberdeen University.
Armagh.	Berlin Academy of Sciences.
Berlin.	Bologna Academy of Sciences.
Breslau.	Boston American Academy of Sciences.
Brussels.	Brunswick, U.S. Bowdoin College.
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Turin.	Stockholm Royal Academy of Sciences.
Vienna.	Upsal Royal Society.
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A List of Observatories, Institutions and Individuals, entitled to receive a Copy of the
Magnetical and Meteorological Observations made at the Royal Observatory, Greenwich.

Observatories.

Bombay	Lieut. P. W. Mitcheson.
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Kreil, Prof. K.	Vienna.
Kupffer, A. T.	St. Petersburg.
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ADJUDICATION of the MEDALS of the ROYAL SOCIETY for the year 1864 by
the PRESIDENT and COUNCIL.

The COPLEY MEDAL to CHARLES DARWIN, Esq., F.R.S., for his important Researches in Geology, Zoology, and Botanical Physiology.

The RUMFORD MEDAL to Professor JOHN TYNDALL, F.R.S., for his Researches on the Absorption and Radiation of Heat by Gases and Vapours.

A ROYAL MEDAL to JACOB LOCKHART CLARKE, Esq., F.R.S., for his Researches on the Intimate Structure of the Spinal Cord and Brain, and on the Development of the Spinal Cord, published in five Memoirs in the Philosophical Transactions and in other writings.

A ROYAL MEDAL to WARREN DE LA RUE, Esq., F.R.S., for his Observations on the Total Eclipse of the Sun of 1860, and for his improvements in Astronomical Photography.

Professor J. TYNDALL'S Paper, entitled "Researches on Radiant Heat,—Fifth Memoir," was appointed as the BAKERIAN LECTURE.

The CROONIAN LECTURE was delivered by Professor HERMANN HELMHOLTZ, For. Mem. R.S.: it was entitled "On the Normal Motions of the Human Eye in relation to Bino-ocular Vision."